

INTERNATIONAL SEARCH REPORT

Inter national Application No
PCT/US2004/034453

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 F16K7/17 F16K31/42 F16K31/00 F16K1/42

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 F16K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

24 January 2005

Date of mailing of the international search report

13.05.2005

Name and mailing address of the ISA

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Inter nal Application No
PCT/US2004/034453

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2003/111178 A1 (MORITA AKIHIKO) 19 June 2003 (2003-06-19)	1,5, 10-12, 39-42, 46, 50-54, 72-75, 116,117, 133-144, 149-152
A	paragraph '0040! - paragraph '0148! figures 1-15	6-9, 13-38, 43-45, 47-49, 55-71, 76-85, 94, 145-148
X	US 3 957 244 A (CHAUVIGNE ET AL) 18 May 1976 (1976-05-18)	1,5, 10-12, 39-42, 46, 50-54, 72-75, 116,117, 133-144, 149-152
A	column 2, line 16 - column 4, line 20 figure 1	6-9, 13-38, 43-45, 47-49, 55-71, 76-85, 94, 145-148
A	US 5 131 627 A (KOLENC ET AL) 21 July 1992 (1992-07-21) cited in the application	1-85,94, 95, 113-117, 133-152
A	abstract; figures 3,4 US 5 201 492 A (BEAUVIR ET AL) 13 April 1993 (1993-04-13) cited in the application	1-85,94, 95, 113-117, 133-152
	abstract; figures 1-4	

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International application No.
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Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 96-112, 121-132
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
see "sheet B"

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: 96-112,121-132

The independent claims 96 to 112 and 121 to 132 are directed to products but do not contain any constructional technical features and therefore it is not possible to determine the matter for which protection is sought. Therefore claims 96 to 112 and 121 to 132 are not in the sense of Art. 6 PCT. Thus no search can be established for these claims.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-85,94-95,113-117,133-138,139-152

directed to a fluid control valve and the method of operating a fluid control valve. The problem to solve is to provide a fail safe valve with faster response and time precision.

2. claims: 86-93,118-120

directed to a valve seat assembly. The problem to solve is to provide a valve seat assembly that is leak-tight in high-temperature applications and has a long cycle lifetime.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 2003111178	A1	19-06-2003	JP	2003185053 A		03-07-2003
US 3957244	A	18-05-1976	FR	2250059 A1		30-05-1975
			CH	580246 A5		30-09-1976
			DE	2450094 A1		15-05-1975
			GB	1439913 A		16-06-1976
			IL	46047 A		30-09-1976
			IT	1025282 B		10-08-1978
			JP	50112821 A		04-09-1975
			SE	408949 B		16-07-1979
			SE	7413638 A		02-05-1975
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			CA	2070605 A1		08-12-1992
			EP	0517631 A1		09-12-1992